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TITLE: COMPUTER GENERATED REPORT PRINTING
METHOD AND SYSTEM

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COMPUTER GENERATED REPORT PRINTING METHOD AND SYSTEM

5 BACKGROUND OF THE INVENTION

1. Field Of The Invention

The present invention generally relates to the printing of computer generated reports. The present invention specifically relates to a user
10 friendly printing format for generating computer reports.

2. Description Of The Related Art

Referring to **FIG. 1A**, a computer generated Return Equipment Material Report (RMER) **10** including a header section **20**, a replacement
15 parts section **30** listing line items **31a-31t**, and a footer section **40** is shown. Header section **20** presents shipping information related to a customer, such as, for example, customer number, division number, address, etc. Line items
20 **30a-30t** consists of information related to a particular part, such as, for example, a part number, a quantity, a serial number, etc. Footer section **40** presents shipping information related to a shipping department, such as, for example, number of items shipped, date, shipment verification, etc.

Prior to the present invention, a printout of RMER **10** was based on the contents of RMER **10** being displayed in a display window of a computer monitor. Thus, the overall length of RMER **10** relative to a length of each
25 display window was a determining factor as to the number of printed pages of RMER **10**. For example, a prior art printout of RMER **10** consists of a printed page **P1** as shown in **FIG. 1B** that corresponds to a parts subsection **30a**

listing line items **31a-31h** as displayed in a display window **50a** as shown in **FIG. 1A**. A printed page **P2** as shown in **FIG. 1C** that corresponds to a parts subsection **30b** listing line items **31a-31h** being displayed in a display window **50b** of RMER **10** as shown in **FIG. 1A**. And, a printed page **P3** as shown in **FIG. 1D** that corresponds to a parts subsection **30c** listing line items **31a-31h** being displayed in a display window **50c** of RMER **10** as shown in **FIG. 1A**.

Referring to **FIGS. 1B-1D**, a problem of printed pages **P1-P3** occurs when printed pages **P1-P3** are separated. Specifically, the ability to determine that printed pages **P1-P3** are collectively representative of RMER **10** is diminished when printed pages **P1-P3** are separated due to the lack of mutual identifying information on printed pages **P1-P3**. Consequently, to obtain mutually identifying information on each printed page, a user of a system for generating RMER **10** was forced to initially input line items **31a-31g**, and then a print page **P4** as shown in **FIG. 1E**. The user subsequently deleted line items **31a-31g**, inputted line items **31h-31n**, and then printed a page **P5** including a parts subsection **30d** listing line items **31h-31n** as shown in **FIG. 1F**. The user subsequently deleted line items **31h-31n**, inputted line items **30o-30t**, and then printed a page **P6** including a parts subsection **30e** listing line items **30o-30t** as shown in **FIG. 1G**.

A user of the prior art system for generating RMER **10** can input mistakes whereby the user may have to re-print each required page of RMER **10** when the mistake significantly shifts the line items **31** within parts section **30**. Additionally, if the user wants to have the ability to edit each printing page, the user has to save each printed page as a separate file as opposed to one file for RMER **10**. Thus, the prior art approach for generating and printing RMER **10** was inefficient and inconvenient. The present invention addresses the problems with the prior art.

SUMMARY OF THE INVENTION

The present invention relates to a computer-generated report printing method and system that overcomes the disadvantages associated with the prior art. Various aspects of the invention are novel, non-obvious, and provide various advantages. While the actual nature of the present invention covered herein can only be determined with reference to the claims appended hereto, certain features, which are characteristic of the embodiments disclosed herein, are described briefly as follows.

One form of the present invention is a method for printing a computer generated report including a header section presenting a first set of information, a parts sections listing one or more line items, and a footer section presenting a second set of information. A first report page including the header section, a first parts subsection, and the footer section is printed. The parts subsection lists a quantity of line items wherein the quantity is less than or equal to a first number. A second reported page including a header subsection, a second parts subsection, and a footer subsection is printed when the total quantity of line items listed in the parts section exceeds the first number. The second parts subsection lists a quantity of line items wherein the quantity is less than or equal to a second number. The header subsection presents a portion of the first set of information presented on the header section. The footer subsection presents a portion of the second set of information presented on the footer section.

A second form of the present invention is a system for printing a computer generated report including a header section presenting a first set of information, a parts sections listing one or more line items, and a footer section presenting a second set of information. The system comprises a pair of printing means. The first printing means is for printing a first report page including the header section, a first parts subsection, and the footer section. The parts subsection lists a quantity of line items and the quantity is less than or equal to a first number. And, a means for printing a second page including a header subsection, a second parts subsection, and a footer subsection is printed when the total quantity of line items listed in the parts section exceeds the first number. The second parts subsection lists a quantity of line items wherein the quantity is less than or equal to a second number. The header subsection presents a portion of the first set of information presented on the header section. The footer subsection presents a portion of the second set of information presented on the footer section.

A third form of the present invention is a computer program product in a computer readable medium for printing a computer generated report including a header section presenting a first set of information, a parts sections listing one or more line items, and a footer section presenting a second set of information. The computer program product comprises a pair of computer readable codes. The first computer readable code is for printing a first report page including the header section, a first parts subsection, and the footer section. The parts subsection lists a quantity of line items and the quantity is less than or equal to a first number. The second computer readable code is for printing a second page including a header subsection, a second parts subsection, and a footer subsection is printed when the total quantity of line items listed in the parts section exceeds the first number. The

second parts subsection lists a quantity of line items wherein the quantity is less than or equal to a second number. The header subsection presents a portion of the first set of information presented on the header section. The footer subsection presents a portion of the second set of information

5 presented on the footer section.

The foregoing forms and other forms, features and advantages of the present invention will become further apparent from the following detailed description of the presently preferred embodiments, read in conjunction with the accompanying drawings. The detailed description and drawings are

10 merely illustrative of the invention rather than limiting, the scope of the invention being defined by the appended claims and equivalents thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1A is an illustration of a Returned Material Equipment Report (RMER) as known in the art;

5 **FIG. 1B** is an illustration of a first printed page of the **FIG. 1** RMER as known in the art;

FIG. 1C is an illustration of a second printed page of the **FIG. 1** RMER as known in the art;

FIG. 1D is an illustration of a third printed page of the **FIG. 1** RMER as known in the art;

10 **FIG. 1E** is an illustration of a fourth printed page of the **FIG. 1** RMER as known in the art;

FIG. 1F is an illustration of a fifth printed page of the **FIG. 1** RMER as known in the art;

15 **FIG. 1G** is an illustration of a sixth printed page of the **FIG. 1** RMER as known in the art;

FIG. 2 is a block diagram of one embodiment of computer hardware in accordance with the present invention;

FIG. 3 is a block diagram of one embodiment of computer software in accordance with the present invention;

20 **FIG. 4** is a flow chart of a report printing routine in accordance with the present invention;

FIG. 5A is an illustration of a first printed page of the **FIG. 1** RMER in accordance with the present invention; and

25 **FIG. 5B** is an illustration of a second printed page of the **FIG. 1** RMER in accordance with the present invention.

DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS

Referring to **FIGS. 2** and **3**, a system in the form of a computer **60** for executing a report generation module **80** and a report print module **90** is shown. Computer **60** includes a bus **61** for facilitating electrical communication among a central processing unit (CPU) **62**, a read-only memory (ROM) **63**, a random access memory (RAM) **64**, an input/output (I/O) controller **65**, a disk controller **66**, a communication controller **67**, and a user interface controller **68**. CPU **62** is preferably one of the Intel families of microprocessors, one of the Motorola families of microprocessors, or one of the various versions of a Reduced Instruction Set Computer microprocessor such as the PowerPC chip manufactured by IBM. ROM **63** permanently stores a conventional operating system and various controlling programs such as the Basic Input-Output System (BIOS) developed by IBM. RAM **64** is the memory for loading the operating system and selectively loading the controlling programs.

Controller **65** is an aggregate of controllers for facilitating an interaction between CPU **62** and pointing devices such as a mouse **70** and a keyboard **71**, and between CPU **62** and output devices such as a printer **72** and a fax **73**. Controller **66** is an aggregate of controllers for facilitating an interaction between CPU **62** and data storage devices such as disks drives **74** in the form of a hard drive, a floppy drive, a local drive, and a compact-disc drive. Controller **67** is an aggregate of controllers for facilitating an interaction between CPU **62** and a network **75**, and between CPU **22** and a database **76**. Controller **68** is an aggregate of controllers for facilitating an interaction between CPU **62** and a graphic display device such as a monitor **77**, and between CPU **62** and an audio device such as a speaker **78**.

Those having skill in the art will appreciate alternative embodiments of computer **20** for implementing the principles of the present invention.

Module **80** and module **90** are physically stored within ROM **63** and uploaded to RAM **64** whereby ROM **63** and RAM **64** are computer readable
5 mediums electrically, mechanically, and/or chemically altered to carry a computer program product. In other embodiments of computer **60**, module **80** and/or module **90** can be physically stored within other computer readable mediums such as one or more of the hard drives **74**, or in a memory of another system computer (not shown) whereby module **80** and/or module **90**
10 can be accessed over network **75** by computer **60**. In other embodiments of computer **60**, module **80** and module **90** can be fully or partially implemented with digital circuitry, analog circuitry, or both.

Module **80** conventionally generates or edits RMER **10** (**FIG. 1A**) in response to relevant data and information inputs from a user of computer **60**,
15 and/or in response to a retrieval of the relevant data and information from one or more of the disk drives **74**, from a source via network **75**, and/or from database **76**. Those having ordinary skill in the art can appreciate the physical elements of computer **60** that are associated with an execution of module **80**.

20 Module **90** implements a routine **100** that will now be described herein in conjunction with a description of a generation of printed page **P4** (**FIG. 1E**), as well as a generation of a printed page **P7** and a printed page **P8** as shown in **FIGS. 5A** and **5B**, respectively, from RMER **10** (**FIG. 1A**). Those having ordinary skill in the art will appreciate the physical elements of computer **60**
25 that are associated with the generation of the printed pages **P4-P6** from RMER **10**. Those having ordinary skill in the art will further appreciate the advantage of routine **100** in facilitating an unlimited input of line items **31** during a generation or modification of RMER **10**.

Referring to **FIGS. 1D**, and **4-5B**, during a stage **S102** of routine **100**, module **90** formats and prints header section **20** (**FIG. 1A**). Module **90** thereafter proceeds to a stage **S104** of routine **100** to format and print a parts subsection listing **X** number or less of line items **31**. The number **X** is **7** for purposes of describing the present invention whereby, during stage **S104**, module **90** formats and prints parts subsection **30d** (**FIG. 1D**) listing line items **31a-31g**. However, in other embodiments of **RMER 10** (**FIG. 1A**), the number **X** may vary as a function of the size of header section **20** and footer section **40** of **RMER 10** as those having ordinary skill in the art will appreciate. Module **90** thereafter proceeds to a stage **S106** to format and print footer section **40** (**FIG. 1A**). Page **P4** (**FIG. 1D**) is the end result of the execution of stages **S102-S106**.

During a stage **S108** of routine **100**, module **90** ascertains whether the total quantity of line items **31** of **RMER 10** exceeds the number **X**. The total quantity of line items **31a-31t** for purposes of describing the present invention is **20**, whereby, during stage **S108**, module **90** determines the total quantity of line items **31** of **RMER 10** exceeds the number **X** and proceeds to a stage **S110** of routine **100**. In other embodiments of **RMER 10**, the total quantity of line items **31** may be less than or equal to the number **X** with module **90** proceeding to terminate routine **100** with page **P4** being the only printed page.

During stage **S110**, module **90** formats and prints a header section **21** as shown in **FIG. 5A**. Header section **21** represents a subset of the information represented by header section **20**, and therefore is a reduced version of header section **20**. In one embodiment, header section **21** represents information that clearly links header section **21** and header section **20** such as, for example, an invoice number. Module **90** thereafter proceeds to a stage **S112** of routine **100** to format and print a parts subsection listing **Y**

number or less of line items **31**. The number Y is **9** for purposes of describing the present invention whereby, during stage **S112**, module **90** formats and prints parts a subsection **30g** (**FIG. 5A**) listing line items **31h-31p**. Module **90** thereafter proceeds to a stage **S114** to format and print a footer subsection **41** as shown in **FIG. 5A**. Footer section **41** represents a subset of the information represented by footer section **40**, and therefore is a reduced version of footer section **40**. In one embodiment, footer section **41** represents information that links footer section **41** and footer section **40** such as, for example, a print date and a page number. Page **P7** as shown in **FIG. 5A** is the end result of the first execution of stages **S110-S114**.

The number Y can vary as a function of the size of header subsection **21** and footer subsection **41** as those having ordinary skill in the art will appreciate.

During a stage **S116** of routine **100**, module **90** ascertains whether there are any unprinted line items **31**. In one embodiment, module **90** compares the total quantity of line items **31a-31t** to a summation of number X and number Y during stage **S116**. For purposes of describing the present invention, module **90** determines there are four (4) unprinted line items **31** from a comparison of 20 total line items and a sum of 16. Thus, module **90** proceeds to stage **S110** of routine **100**. In other embodiments of RMER **10**, the total quantity of line items **31** may be less than or equal to the sum of the number X and Y with module **90** proceeding to terminate routine **100** after stage **S116** and page **P4** and page **P7** being the printed pages.

During a second iteration of stage **S110**, module **90** formats and prints header section **21** as shown in **FIG. 5B**. Module **90** thereafter proceeds to stage **S112** to format and print a parts subsection **30h** listing line items **31q-31t** as shown in **FIG. 5B**. Module **90** thereafter proceeds to a stage

5 **S114** to format and print footer subsection **41** as shown in **FIG. 5B**. Page **P8** as shown in **FIG. 5B** is the end result of the second execution of stages **S110-S114**.

During a second iteration of stage **S116**, module **90** ascertains whether there are any unprinted line items **31**. In one embodiment, module

10 **90** compares the total quantity of line items **31a-31t** to a summation of number **X** and number **2Y** during the second iteration of stage **S116**. For purposes of describing the present invention, module **90** determines there are not unprinted line items **31** from a comparison of **20** total line items and a sum of **23**. Thus, module **90** proceeds to terminate routine **100** with page **P4**,

15 page **P7** and page **P8** being the printed pages.

In other embodiments of routine **100**, stages **S102-S106** and stages **S110-S114** may be designed to format the associated sections, and routine **100** may include an additional stage for printing each formatted section.

While the embodiments of the present invention disclosed herein are

20 presently considered to be preferred, various changes and modifications can be made without departing from the spirit and scope of the invention. The scope of the invention is indicated in the appended claims, and all changes that come within the meaning and range of equivalents are intended to be embraced therein.